

Notice of Allowability	Application N .	Applicant(s)	
	10/627,460	KOCH ET AL.	
	Examiner	Art Unit	
	Faye Polyzos	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to submission on 12 January 2005.
2. ☒ The allowed claim(s) is/are 1-7, 9-19, 21 and 22.
3. ☒ The drawings filed on 25 July 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

EXAMINER'S COMMENT AND STATEMENT OF REASONS FOR ALLOWANCE

Comment on Submissions

1. This communication is responsive to submission of 12 January 2005.

Allowable Subject Matter

2. Claims 1-7, 9-19, 21 and 22 are allowed.
3. The following is an examiner's statement of reasons for allowance:

Regarding independent claims 1 and 14, the prior art does not disclose or fairly suggest a quantum dot infrared photodetector focal plane array (QDIP FPA) for generating infrared images where the device or method comprise an arrangement of a third barrier layer grown on the surface of a second contact layer having a metal contact on its surface; a second doped quantum dot layer grown on the third barrier layer; a fourth barrier layer on the second doped quantum dot layer or a third contact layer, having a metal contact on its surface, grown on the fourth barrier layer or a read-out circuit that is electrically coupled to each of the metal contact and adapted to correlate electrical signals produced by the doped quantum dot layers to intensity of sensed light.

The examiner notes that while it is known in the art for a (QDIP FPA) device to comprise; multiple layers of semiconductor materials and multiple layers of quantum dots to enhance performance (see for example Fafard et al. -- US 6,239,449 B1 -- at Fig. 1, col. 4, lines 59-67 and col. 5, lines 1-9), the prior art does not fairly suggest a (QDIP FPA) device manufactured in such a way as to comprise third and fourth barrier and contact layers with an arrangement as described supra or of a read-out circuit adapted to correlate electrical signals,

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produced by the doped quantum dot layers, as disclosed supra, to further intensify the sensed light to allow for a generation of an infrared image.

Regarding independent claim 9, the prior art does not disclose or fairly suggest a quantum dot infrared photodetector focal plane array (QDIP FPA) for generating infrared images where the device comprises first and second stacks of quantum dot epi growths comprising respective first and second contact layers where at least one common contact layer is distinct from the first and second contact layer and the read-out circuit operatively being coupled to each of the three or more.

The examiner notes that while it is known in the art for a (QDIP FPA) device to comprise; multiple layers of semiconductor materials and multiple layers of quantum dots to enhance performance (see for example Fafard et al. – US 6,239,449 B1 -- at Fig. 1, col. 4, lines 59-67 and col. 5, lines 1-9) and an infrared photodetector comprising a bias voltage applied between a first and second electrode so the first electrode has a negative voltage (see for example Masalkar et al. – US 6,445,000 B1 – at col. 5, lines 14-16), the prior art does not fairly suggest a (QDIP FPA) device manufactured in such a way as to comprise third and fourth barrier and contact layers with an arrangement as described supra or of a read-out circuit adapted to correlate electrical signals, produced by the doped quantum dot layers, as disclosed supra, to further intensify the sensed light to allow for a generation of an infrared image.

4. The remaining claims are allowable based on their dependency.

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5. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Faye Polyzos whose telephone number is 571-272-2447. The examiner can normally be reached on Monday thru Friday from 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

7. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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